

Electronic Control

BACK SPACE

VOLUME

TONE

W O L L E N S A K

INSTRUCTION MANUAL

T.1600 & T.1800 SERIES

FOREWORD

Advanced developments incorporated in your Wollensak Electronically Controlled Tape Recorder provides you the ultimate ease of Automatic operation and feather touch control. Combined with this ease of operation is true High Fidelity performance that matches the best in professional equipment.

By means of electrical tabs placed anywhere on the tape, the recorder will stop, rewind and even replay. . . . or turn itself off at the end of the reel—all automatically.

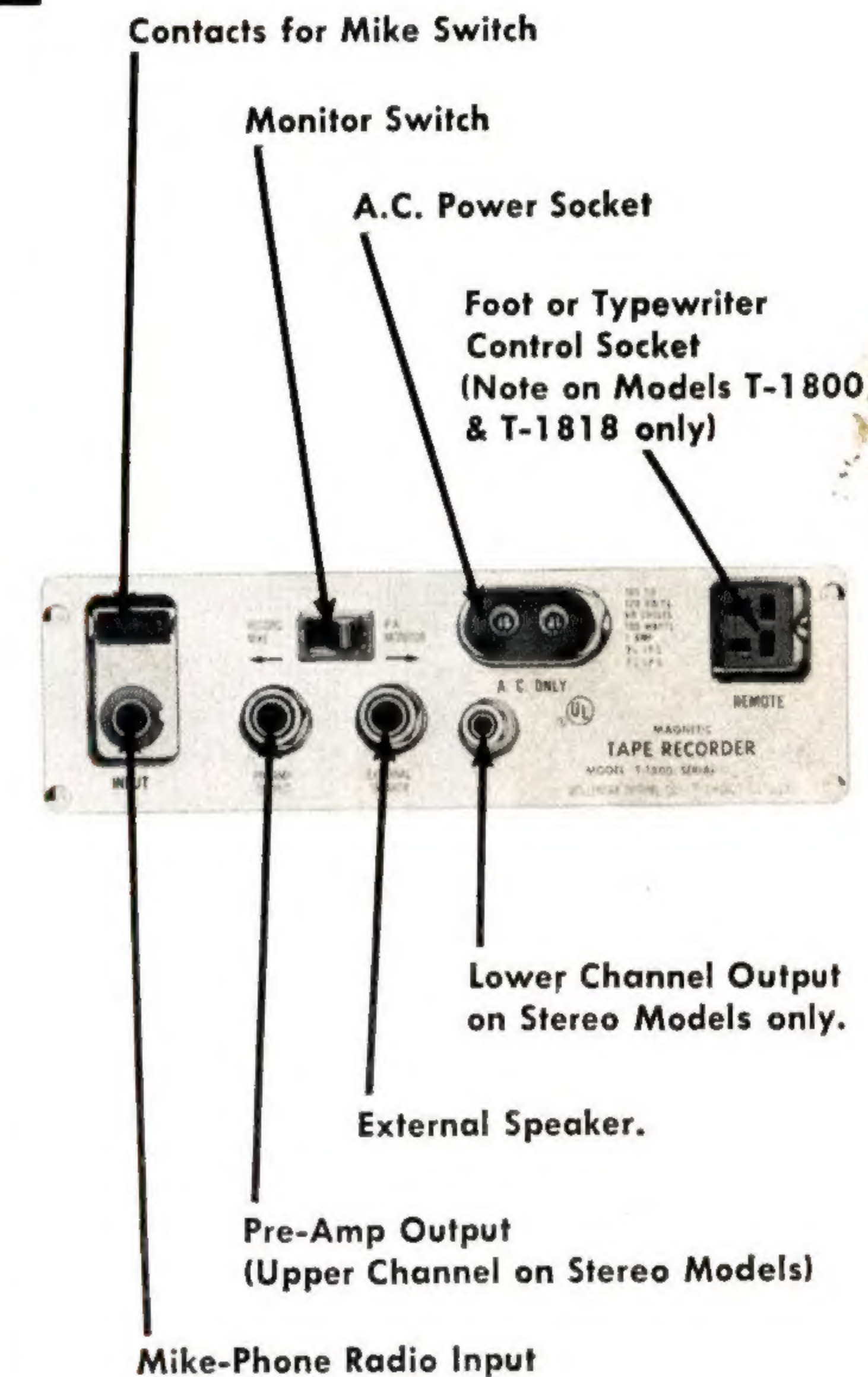
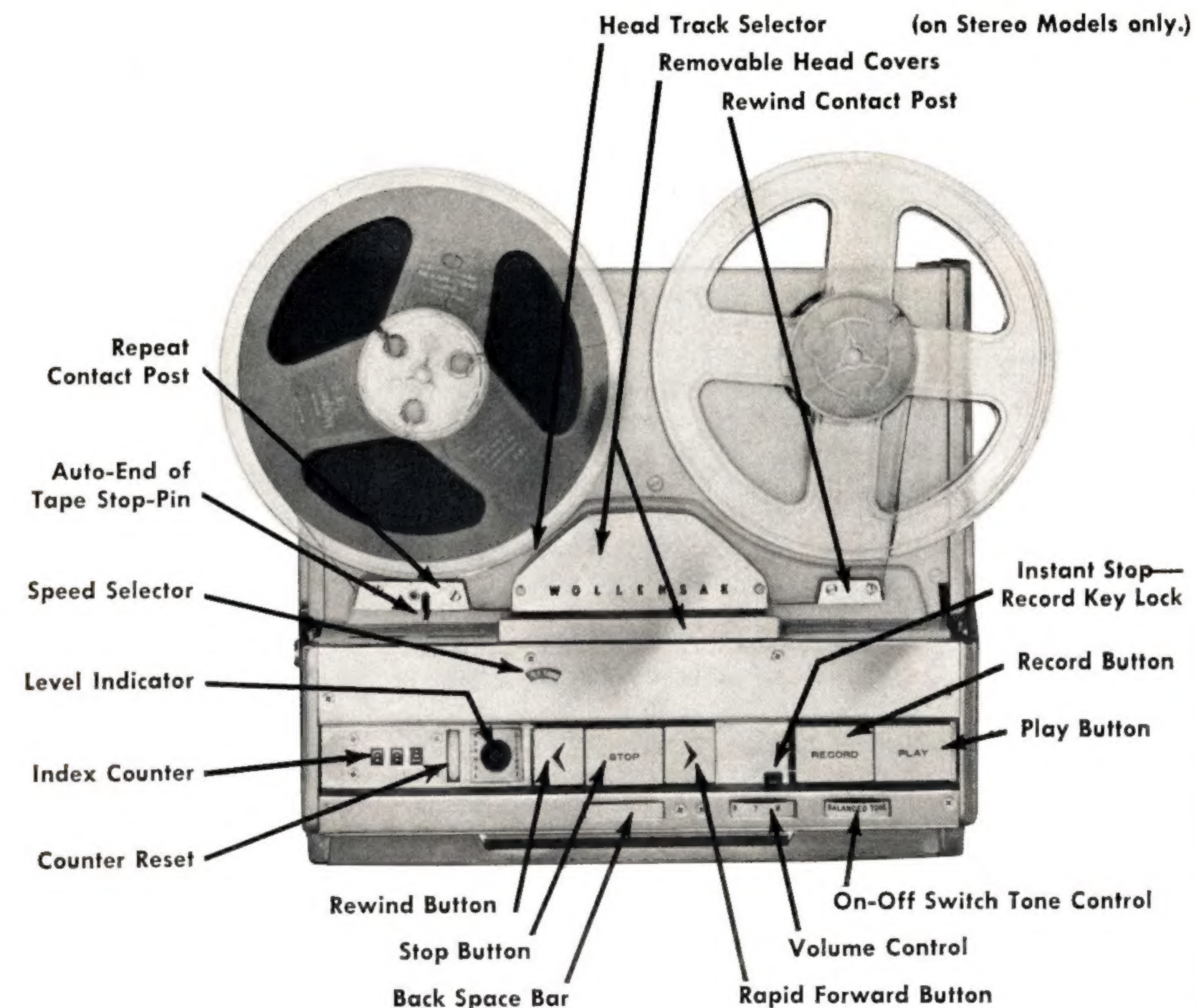
Imagine—continuous automatic operation for hours and hours of musical enjoyment or repeated messages without lifting a finger.

A light touch of the newly innovated "Back Space" provides instant rewind and immediate replay of a word, phrase, musical passage—an invaluable aid for corrections, transcribing and teaching.

Wollensak, famous for its precision, has incorporated all of the above features without any compromise in performance or ruggedness in an all metal smaller, lighter weight unit.

To insure complete enjoyment of the numerous features of the recorder, we suggest that you read the instructions carefully. You will be amazed at the wonderful features and performance of the machine.

KNOW YOUR RECORDER



REAR PANEL

ACCESSORIES



MICROPHONE



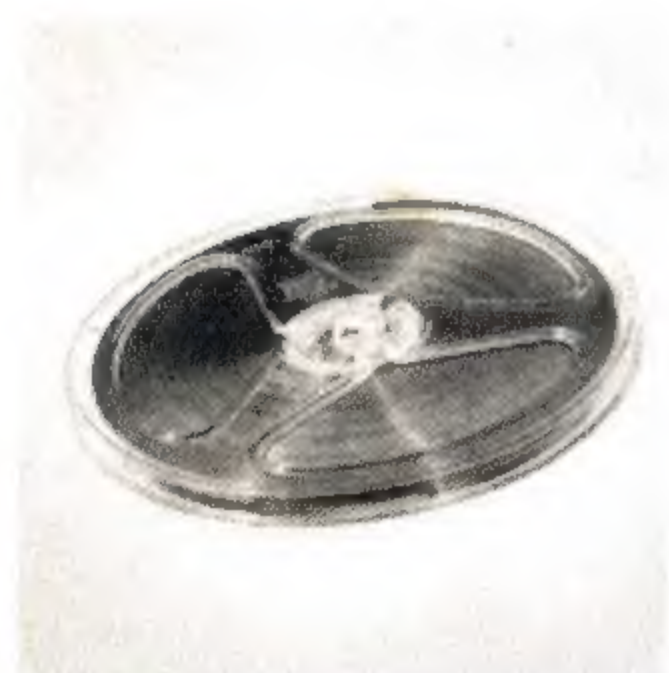
POWER CORD



ATTACHMENT CORD



HI-FI CABLE



RECORDING TAPE



STEREO CABLE
(With Stereo Models-Only)

TO MAKE A MICROPHONE RECORDING

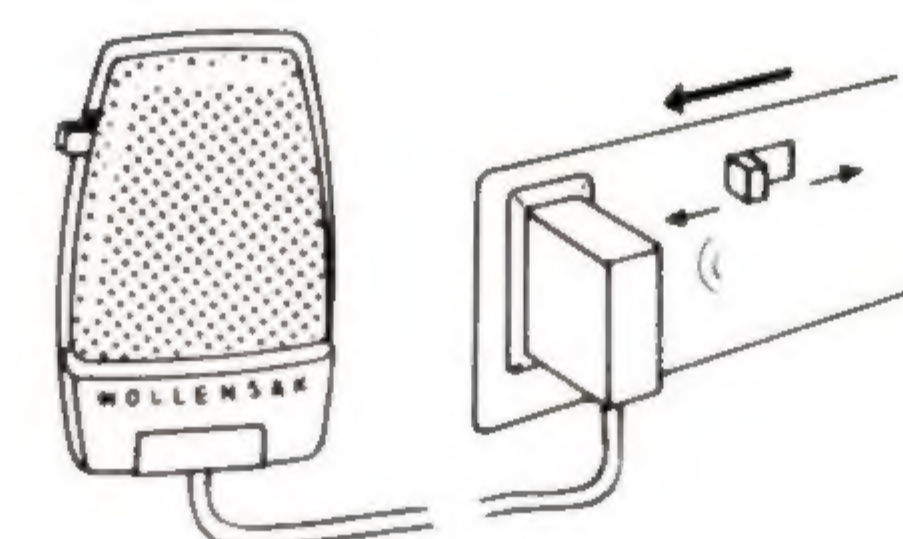
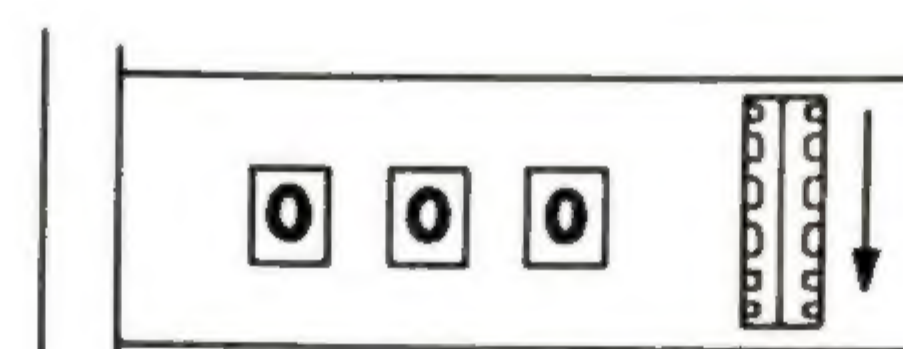
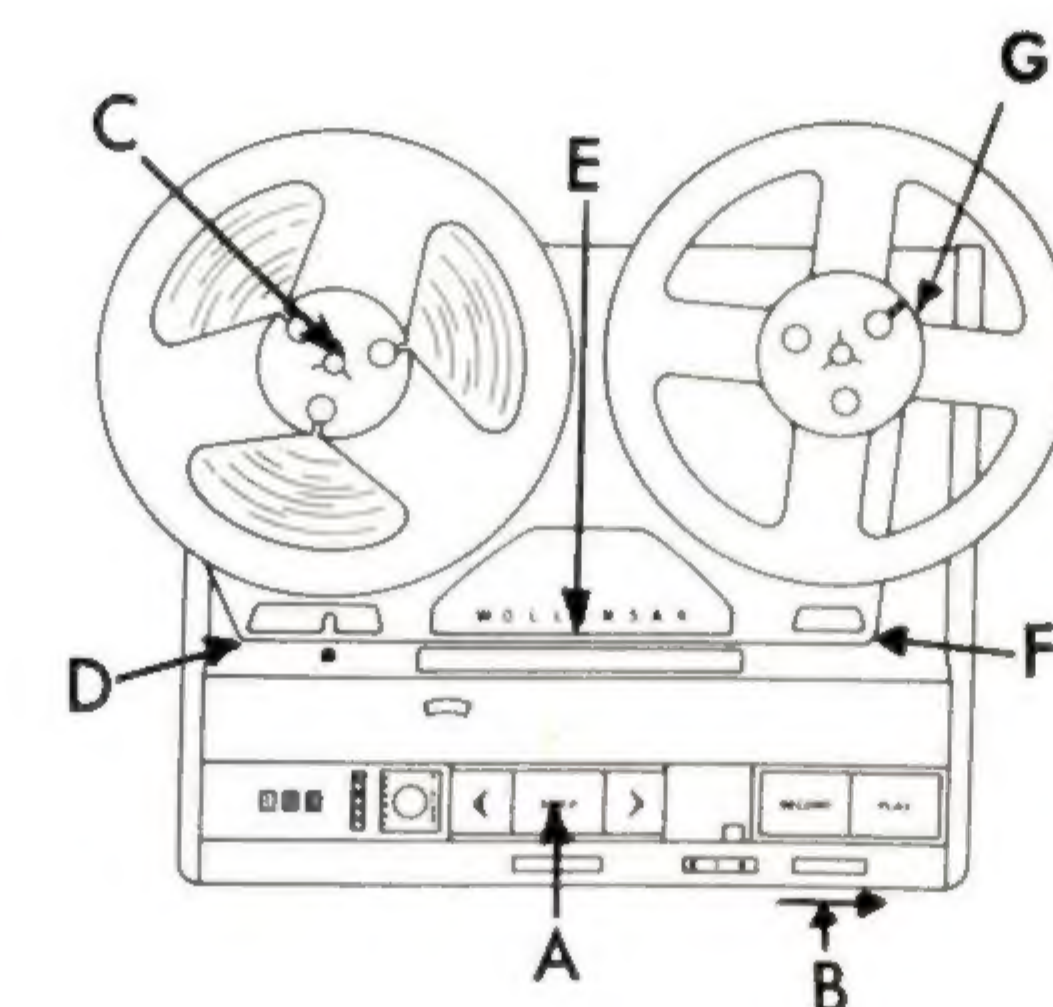
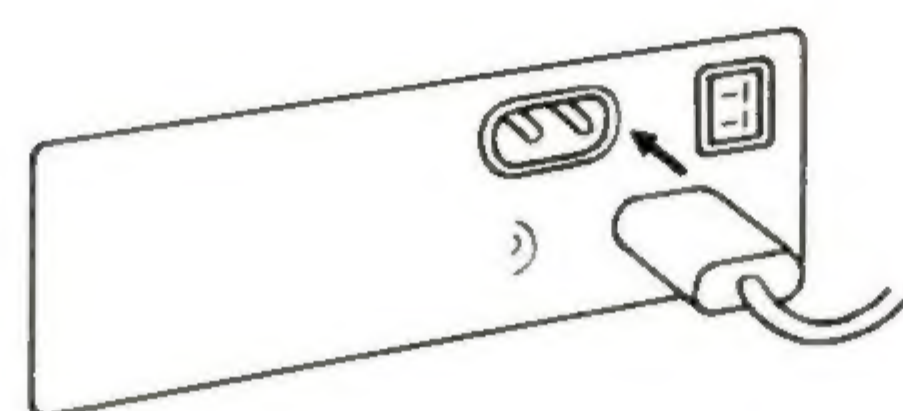
1. **CONNECT POWER CORD** to power socket in rear of machine and an electric outlet. (CAUTION: Check rear nameplate for correct current and voltage; never use on direct current.)

2. THREAD RECORDER:

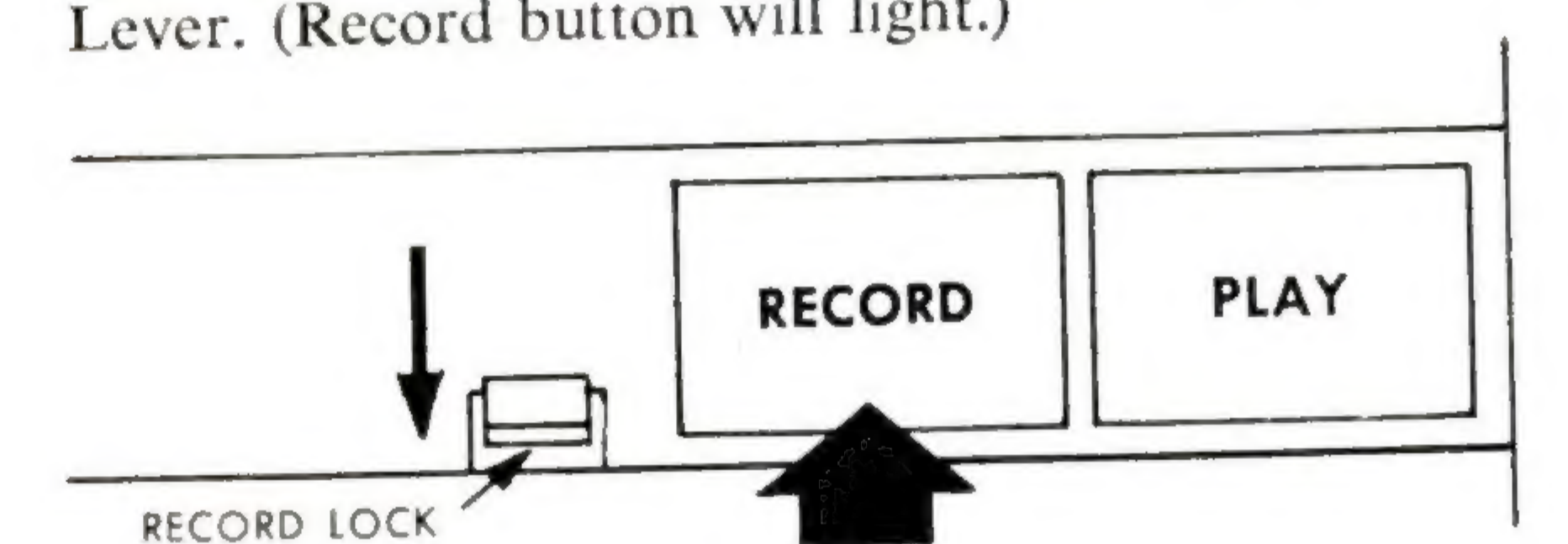
- Press Stop Button.
- Turn Recorder "ON." (Switch on Tone control, turn to the right.)
- Place full reel on left spindle. (Use Type "A", wind tape glossy side out.) Note: By placing reel on spindle end and pulling off a small length of tape, the reel will fall into place.
- D, E and F. Stretch tape in line with threading slot "E" and in front of posts "D" and "F," lower tape into place as shown above, between post and pin "D," drop into slot "E" and in front of post "F."
- Attach end of tape to take-up reel: (A single wrap of tape around reel is enough to engage tape.)

3. **SET INDEX COUNTER TO ZERO** by turning forward its knurled knob. This enables you to return to the exact beginning of the recording.

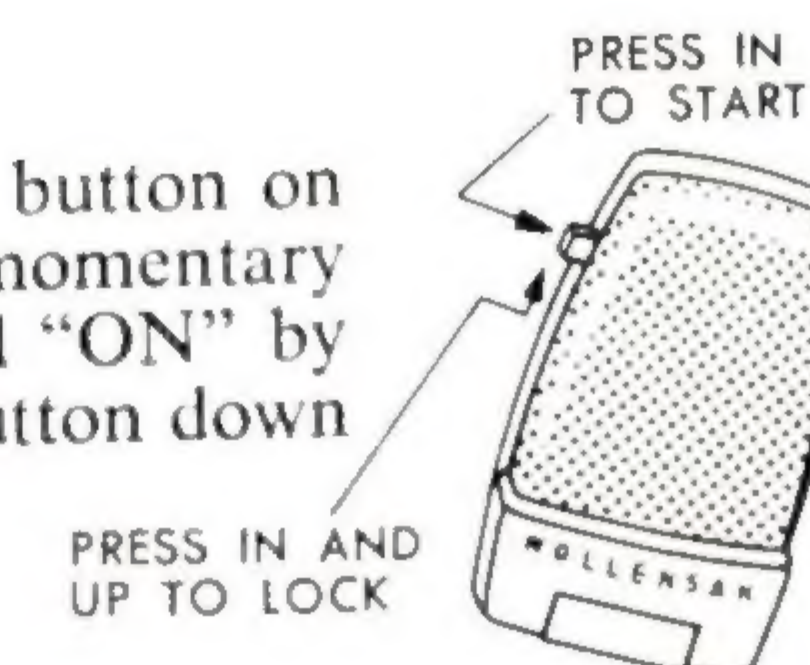
4. **INSERT MICROPHONE PLUG** firmly into microphone input jack, located in rear of recorder. Monitor switch must be in record mike position as shown.



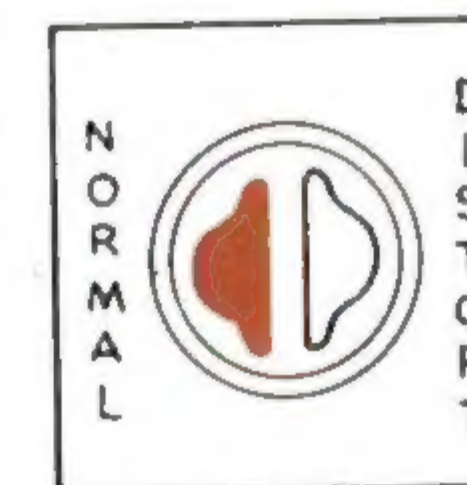
5. **PRESS RECORD BUTTON** — while pulling back combination Record Lock-Instant Stop Lever. (Record button will light.)



6. **TO START RECORDING** — press button on microphone. Release button for momentary stops. (Mike button can be locked "ON" by pushing button in and up. Push button down for release.)



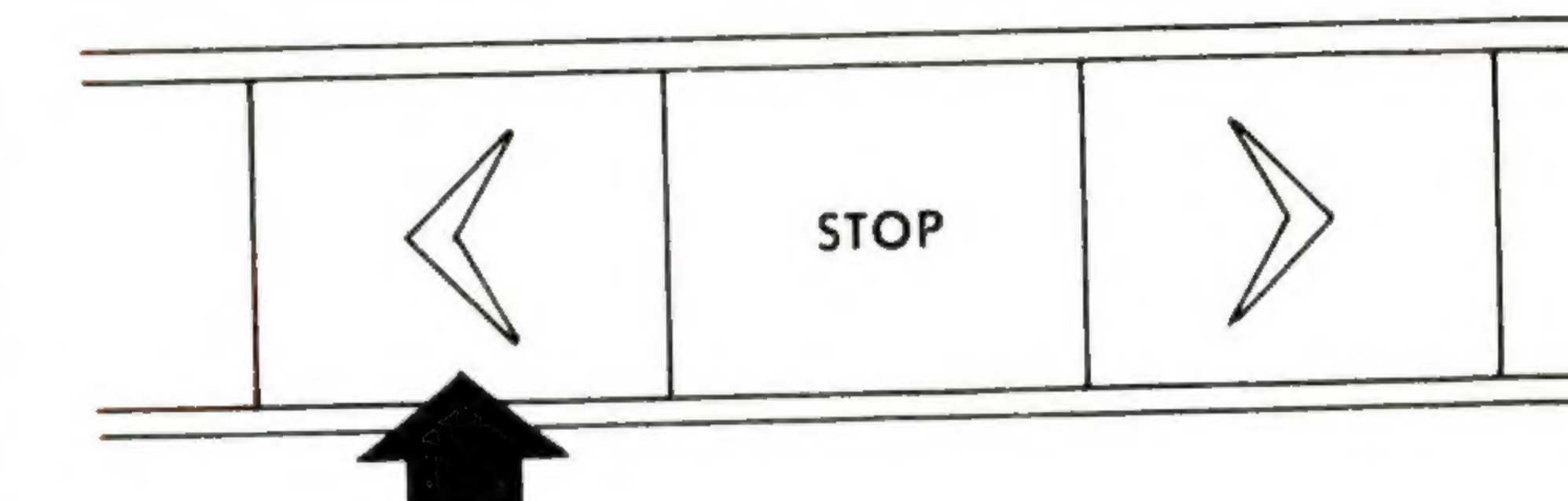
7. **SET RECORD LEVEL.** While talking into microphone, adjust volume control until the "Normal" half of the indicator flashes and no flashing occurs at the "Distorted" half.



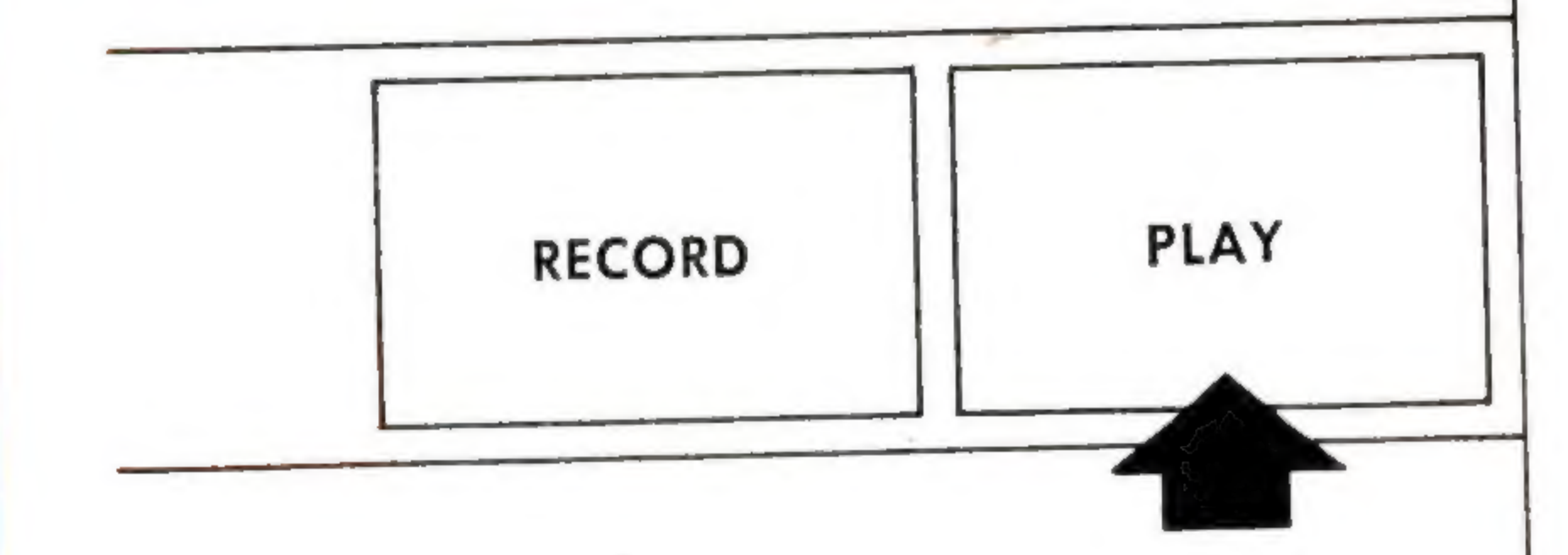
CAUTION: USE RECORDER ON
A.C. CURRENT ONLY.

TO PLAY BACK RECORDINGS

1. **REWIND TAPE** by pressing rewind button with arrow to left. Press Stop button when Index Counter reads Zero.

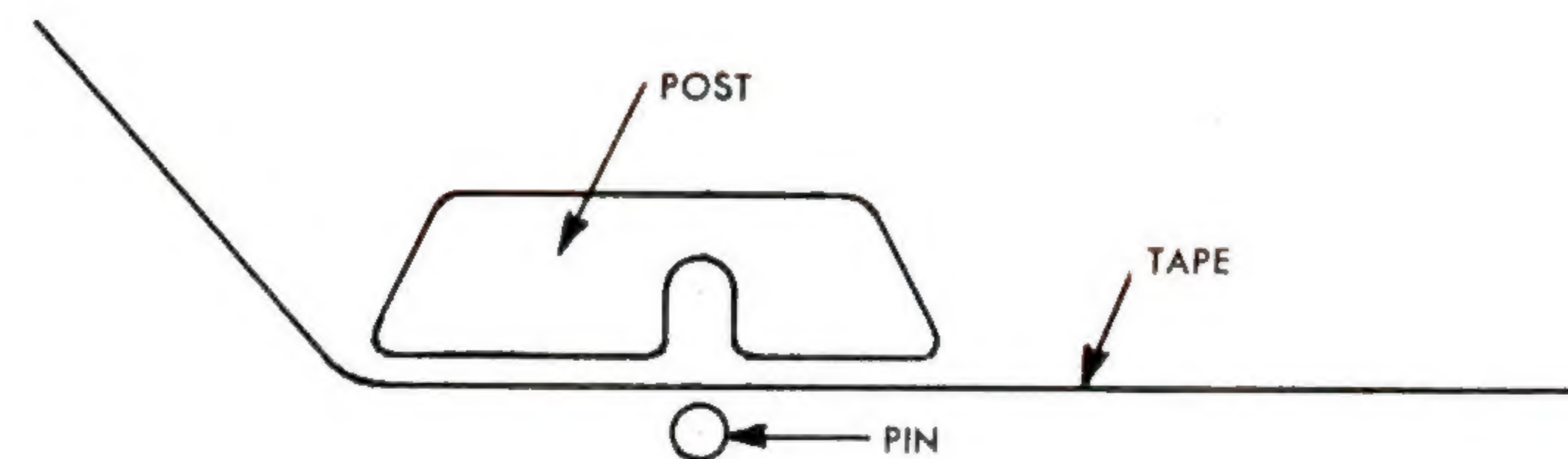


2. **PRESS PLAY BUTTON** and adjust Volume and Tone Control to suit. (Play button will light.)



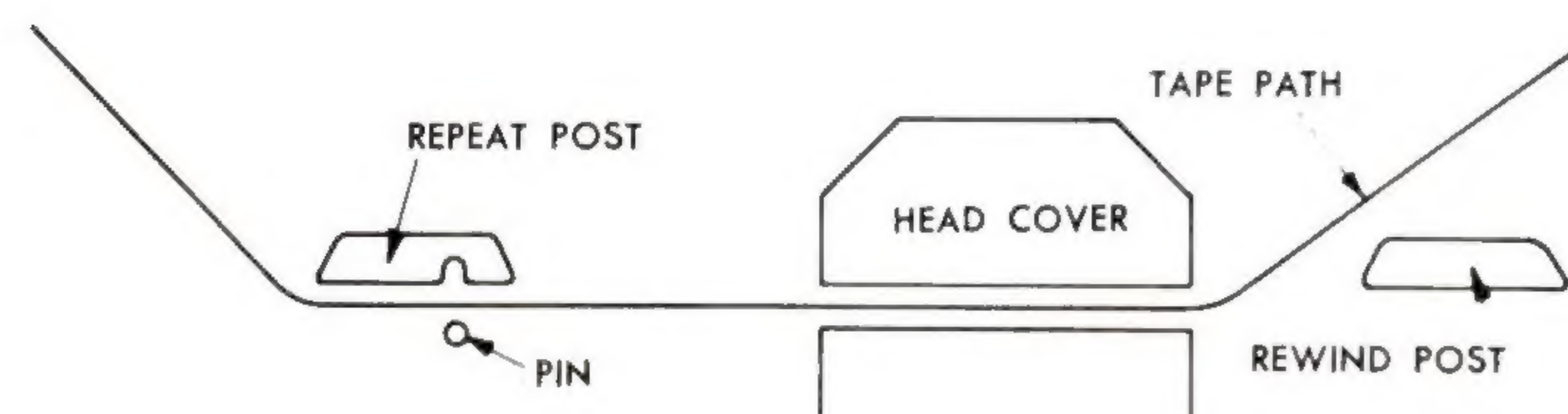
USE OF AUTOMATIC FEATURES

AUTOMATIC END OF TAPE CUTOFF.



Above the index counter is the Auto end of tape stop.

The entire machine automatically turns off when the tape passes out between the post and pin, while in any function of Play, Record, Rewind or Rapid Forward. To turn on the machine after automatic cutoff, the Stop Button must be pressed and the tape rethreaded between post and pin.



NOTE: If the tape has both Rewind and Repeat tape tabs, the end of tape cutoff will not operate unless the tape is threaded in back of Rewind Post as shown above.

AUTOMATIC REWIND

Automatic Rewind is activated by placing a metallic tab on the tape where it is desired to start to rewind, such as at the end of the tape or end of a selection. The rewind begins when the metal tab passes over contacts on the Rewind Post. The machine will continue to rewind until the end of the tape passes out from between the Repeat post and pin. The Rewind tab enables playing a stereo tape, automatically rewinding and stopping the machine, thereby readying the machine for immediate playing of another roll.

TO APPLY A REWIND TAB:



To Apply a Rewind Tab: place tape on any flat surface with dull side of tape facing up. Keep tape direction from left to right the same as it was in the machine. Tape may be held in place by placing objects on it.

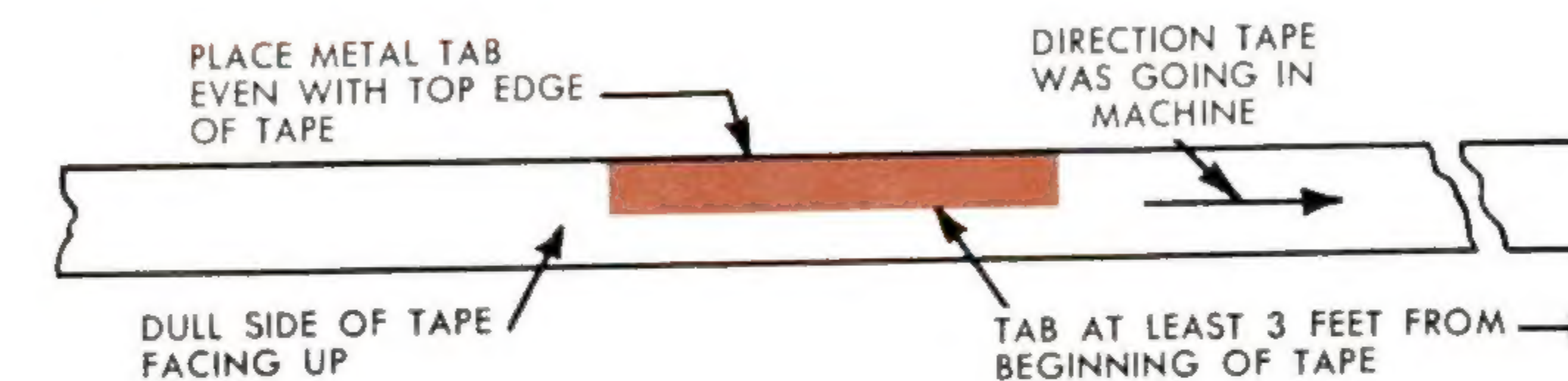
Peel one metal tab from the dispenser card; apply the tab using BOTTOM edge of tape as a guide. Be careful that metal tab doesn't extend beyond the edge of the tape. The tab should be placed at least 3' from the end of the tape to allow the end to remain affixed to the supply reel.

If for some reason it is not desirable to rewind the tape automatically, either the tape can be threaded behind rewind post or the tab can be overridden by manually pressing the rapid-forward button.

AUTOMATIC REPEAT

In conjunction with Rewind tab, the tape can be played automatically over and over again. The repeat or replay feature operates when a repeat tab placed at the beginning of the tape or selection passes over the repeat post.

TO APPLY A REPEAT TAB:



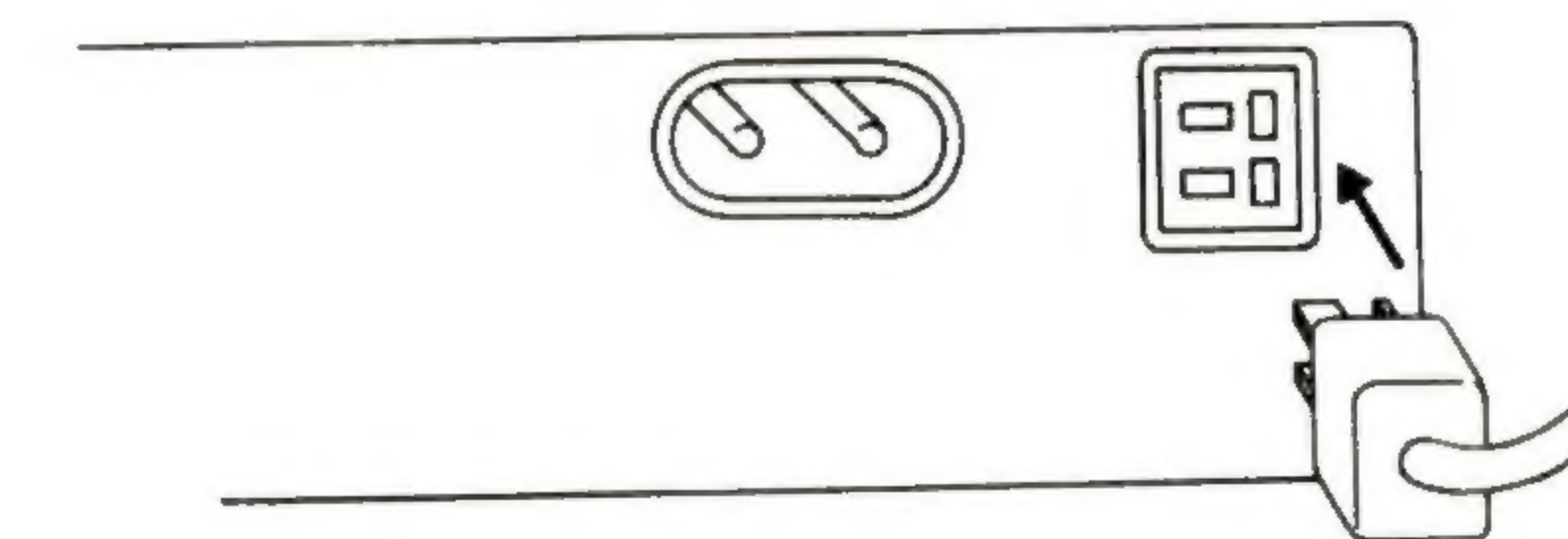
To Apply a Repeat Tab: place tape on any flat surface with dull side of tape facing up. Keep tape direction from left to right, the same as it was in the machine. Tape may be held in place by placing objects on it.

Peel one metal tab from the dispenser card; apply the tab using the TOP edge of the tape as a guide. Be careful that metal tab doesn't extend beyond the edge of the tape. The tab should be placed at least 3' from the beginning of the tape to allow the beginning to remain affixed to the takeup reel.

To prevent the automatic repeat from operating, either the repeat tab can be removed from the tape, or the tab can be overridden by manually pressing the rewind button.

USE OF TYPEWRITER CONTROL

(NOTE: On Models T-1800 series only)



1. Plug the typewriter control plug into its outlet on the rear of the recorder, and place the plate of the control under the typewriter.

2. Press "Play" Button on Recorder and "Listen" button on typewriter control, adjust volume to suit. Hereafter the recorder can be backspaced, stopped or played (Listen) by pressing their respective typewriter control buttons.

If during operation any button on the recorder panel is pressed, the "Play" button on the recorder has to be again pressed to make the typewriter control operative.

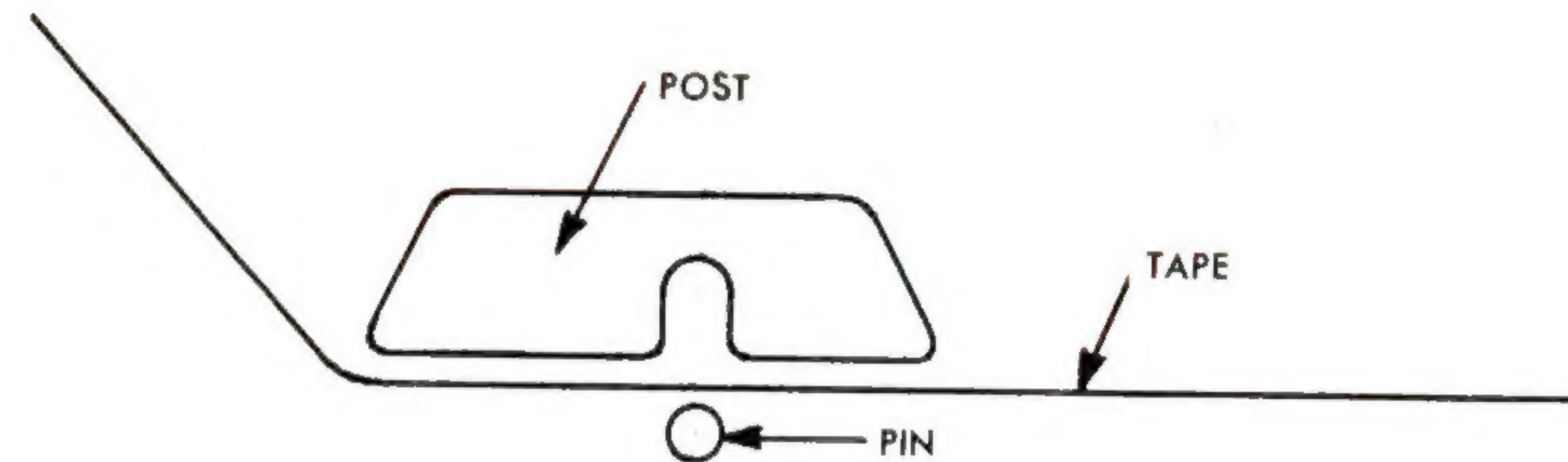
NOTE: Typewriter control can also be used to start-stop the recorder in the record function.

To Use Control In Record:

Press the "Record" button on the machine, press "Listen" and "Stop" on the control to start-stop the recording. Pressing backspace button will backspace the machine and stop upon release. "Record" button and "Listen" will again have to be pressed to start recording.

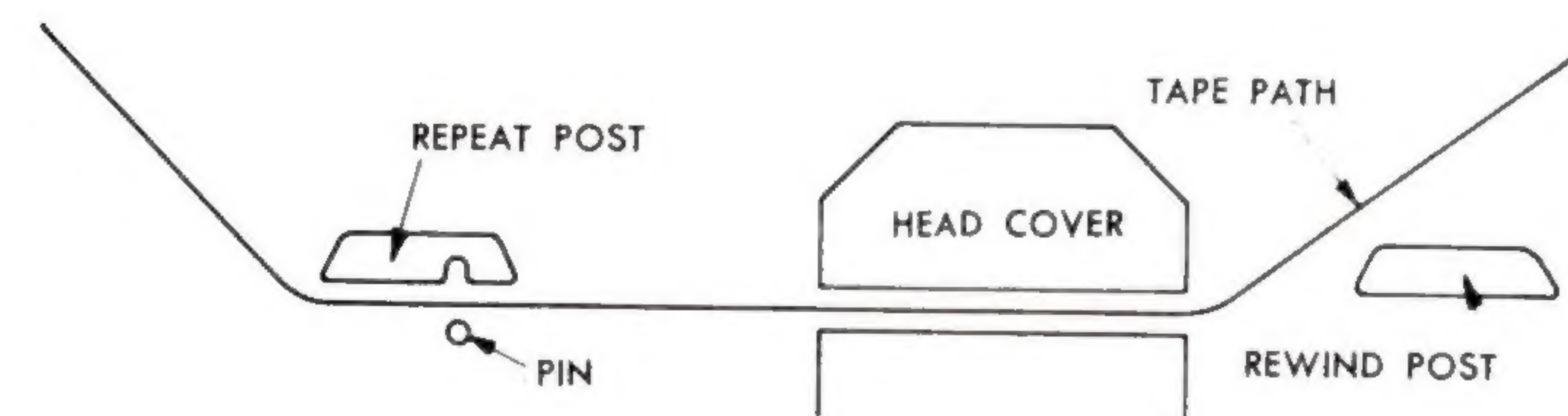
USE OF AUTOMATIC FEATURES

AUTOMATIC END OF TAPE CUTOFF.



Above the index counter is the Auto end of tape stop.

The entire machine automatically turns off when the tape passes out between the post and pin, while in any function of Play, Record, Rewind or Rapid Forward. To turn on the machine after automatic cutoff, the Stop Button must be pressed and the tape rethreaded between post and pin.

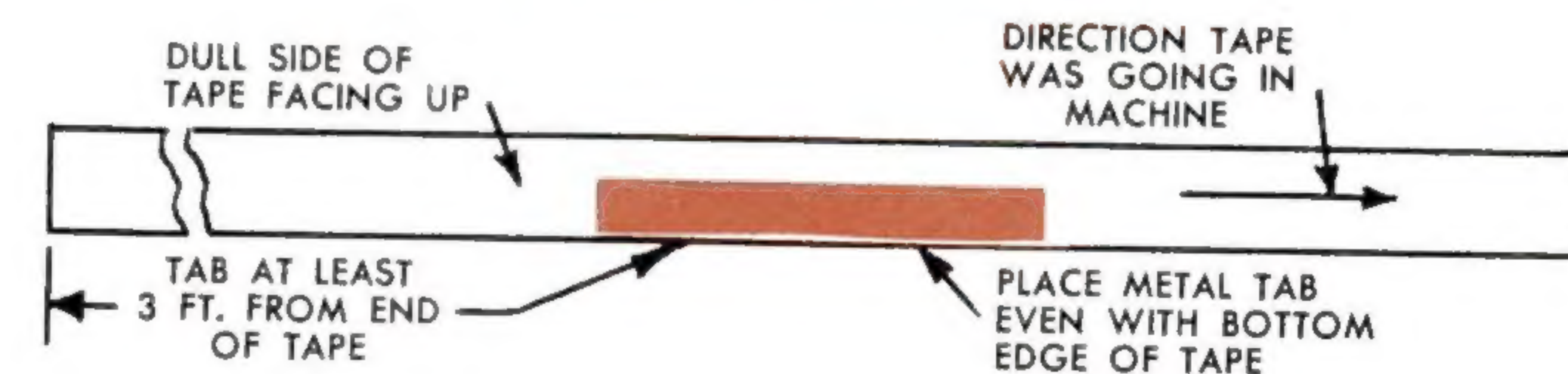


NOTE: If the tape has both Rewind and Repeat tape tabs, the end of tape cutoff will not operate unless the tape is threaded in back of Rewind Post as shown above.

AUTOMATIC REWIND

Automatic Rewind is activated by placing a metallic tab on the tape where it is desired to start to rewind, such as at the end of the tape or end of a selection. The rewind begins when the metal tab passes over contacts on the Rewind Post. The machine will continue to rewind until the end of the tape passes out from between the Repeat post and pin. The Rewind tab enables playing a stereo tape, automatically rewinding and stopping the machine, thereby readying the machine for immediate playing of another roll.

TO APPLY A REWIND TAB:



To Apply a Rewind Tab: place tape on any flat surface with dull side of tape facing up. Keep tape direction from left to right the same as it was in the machine. Tape may be held in place by placing objects on it.

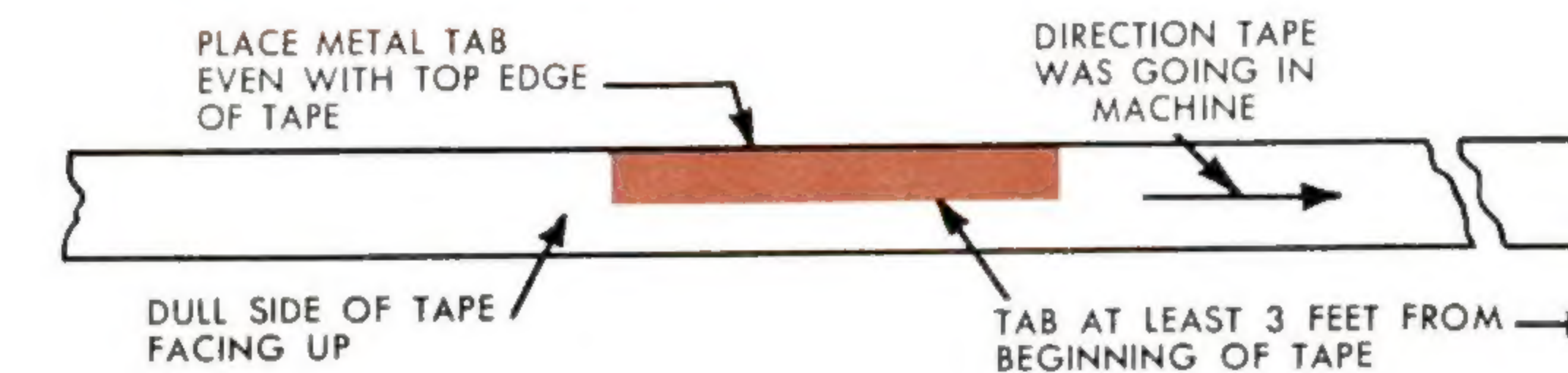
Peel one metal tab from the dispenser card; apply the tab using BOTTOM edge of tape as a guide. Be careful that metal tab doesn't extend beyond the edge of the tape. The tab should be placed at least 3' from the end of the tape to allow the end to remain affixed to the supply reel.

If for some reason it is not desirable to rewind the tape automatically, either the tape can be threaded behind rewind post or the tab can be overridden by manually pressing the rapid-forward button.

AUTOMATIC REPEAT

In conjunction with Rewind tab, the tape can be played automatically over and over again. The repeat or replay feature operates when a repeat tab placed at the beginning of the tape or selection passes over the repeat post.

TO APPLY A REPEAT TAB:



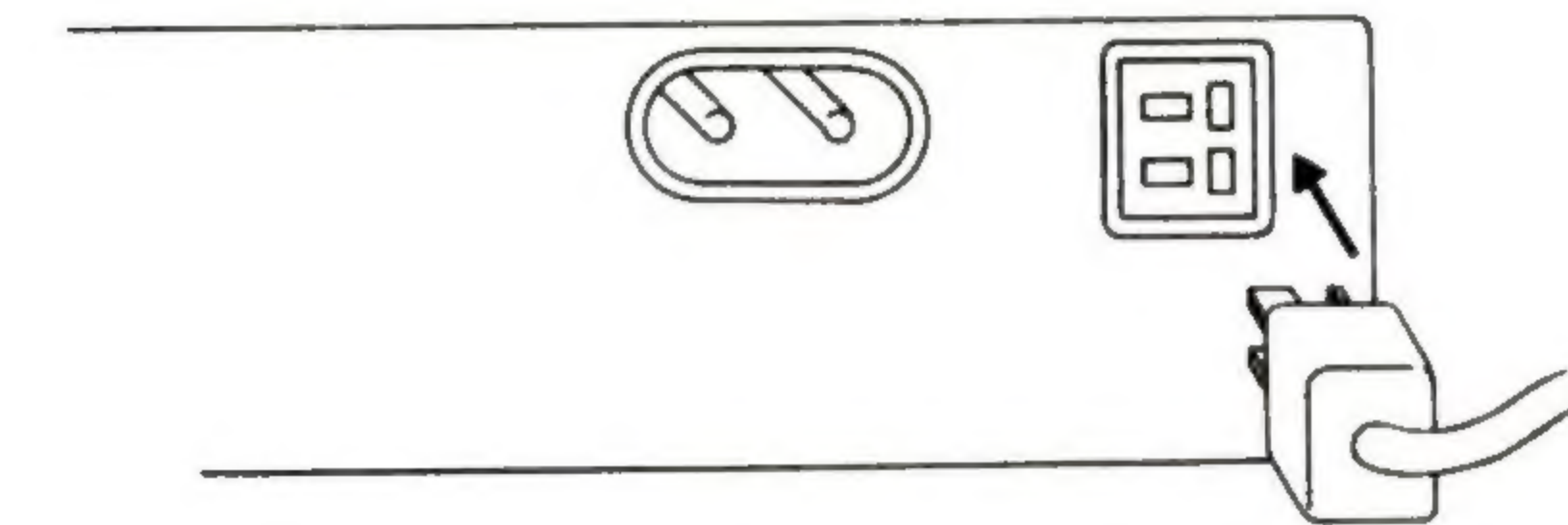
To Apply a Repeat Tab: place tape on any flat surface with dull side of tape facing up. Keep tape direction from left to right, the same as it was in the machine. Tape may be held in place by placing objects on it.

Peel one metal tab from the dispenser card; apply the tab using the TOP edge of the tape as a guide. Be careful that metal tab doesn't extend beyond the edge of the tape. The tab should be placed at least 3' from the beginning of the tape to allow the beginning to remain affixed to the takeup reel.

To prevent the automatic repeat from operating, either the repeat tab can be removed from the tape, or the tab can be overridden by manually pressing the rewind button.

USE OF TYPEWRITER CONTROL

(NOTE: On Models T-1800 series only)



1. Plug the typewriter control plug into its outlet on the rear of the recorder, and place the plate of the control under the typewriter.

2. Press "Play" Button on Recorder and "Listen" button on typewriter control, adjust volume to suit. Hereafter the recorder can be backspaced, stopped or played (Listen) by pressing their respective typewriter control buttons.

If during operation any button on the recorder panel is pressed, the "Play" button on the recorder has to be again pressed to make the typewriter control operative.

NOTE: Typewriter control can also be used to start-stop the recorder in the record function.

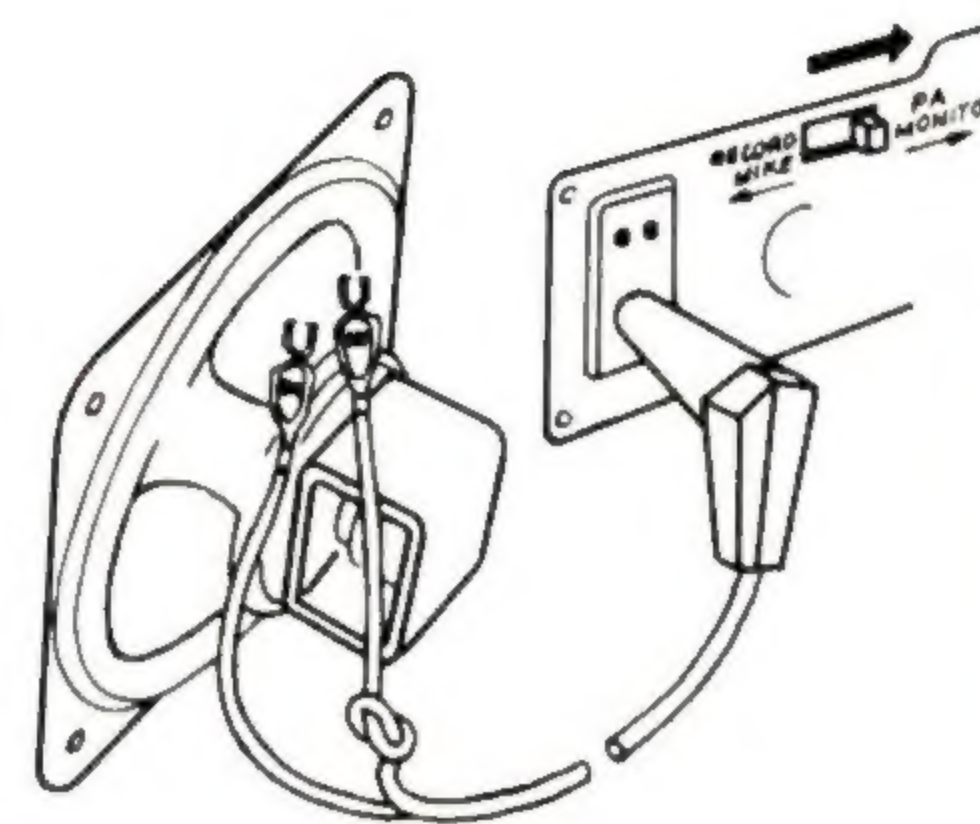
To Use Control In Record:

Press the "Record" button on the machine, press "Listen" and "Stop" on the control to start-stop the recording. Pressing backspace button will backspace the machine and stop upon release. "Record" button and "Listen" will again have to be pressed to start recording.

RECORDING FROM RADIO-TV-PHONOGRAPH

TO CONNECT RADIO OR TV

Insert attachment cord into microphone-radio-phono jack, in rear of recorder. Connect the clip ends of cord to radio or TV speaker terminals. Push switch to "P.A.-Monitor."



TO CONNECT PHONOGRAPH

Any crystal or high level magnetic phonograph having a standard phone plug can be connected directly into the Microphone-Radio-Phono Jack, in rear of recorder. Otherwise the attachment cord may be used. Push switch to "P.A.-Monitor."

With the recorder connected as above, to make a recording—
Set Recording Level—While playing Phono, pull back Instant Stop Lever and Press Record Key. Adjust Volume control until "Normal" half of indicator flashes and no flashing occurs at the "Distorted" half.

Set Index Counter—to zero or note the present reading, so you can return to the exact location of your recording.

Release Instant Stop Lever to Begin Recording—If desired, the recordings can be made in silence by switching the Speaker switch to "Record Mike."

TRACK SELECTION

MONAURAL MODELS T-1600 AND T-1800 ARE 2 TRACK RECORDERS.

Your Wollensak Model T-1600 and Model T-1800 are 2 (or twin) track recorders. This means that each reel holds two full length recordings, one on each half of the dull side of the tape. Rewinding is not necessary at the end of the first track. To use the other track, simply take the full reel from the right spindle, turn it over, place it on the left spindle and re-thread machine.

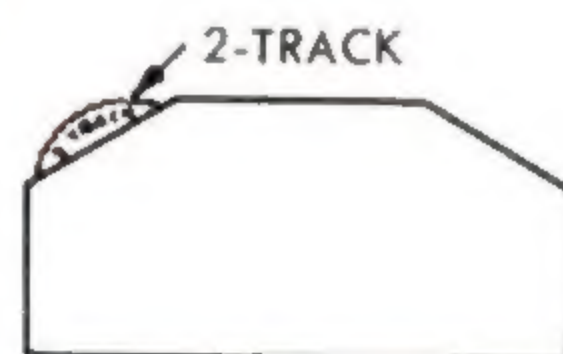
STEREO MODELS T-1616 AND T-1818 ARE 2 TRACK AND 4 TRACK RECORDERS.

- Records and Plays Monaural 2 (or twin) track.
- Records and Plays Monaural 4-separate tracks providing up to four hours on 1200' reel.
- Plays Stereo 2-track tapes.
- Plays Stereo 4-track tapes.

TO RECORD OR PLAY MONAURAL 2 TRACK

1. Rotate the head track selector in back of head cover to 2 track.

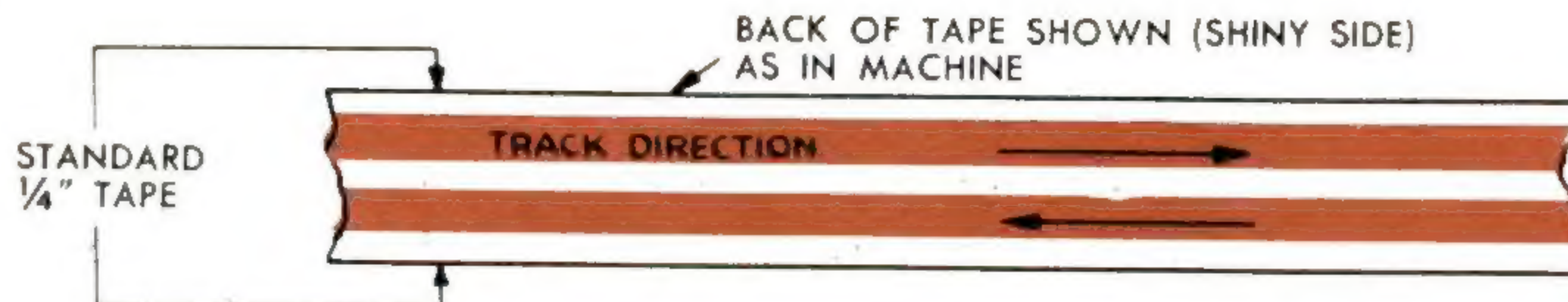
Follow the instructions as described for monaural 2 track recorders above.



MAKING TAPES TO PLAY ON 2 TRACK MACHINES:

In exchanging tapes with people that have 2 (or twin) track machines, be sure your track selector is set on 2 track. The T-1616 and T-1818 erases only 1/4 of the tape, for this reason either new tape will have to be used on your machine or the tapes will have to be bulk erased first. Such bulk erasers are available through most larger radio parts supply houses.

Another method is to record with the volume control turned all the way down on all four parts as described in Record 4 track in the following. This will erase the four tracks, then set the track selector to 2 track and record in the normal manner.



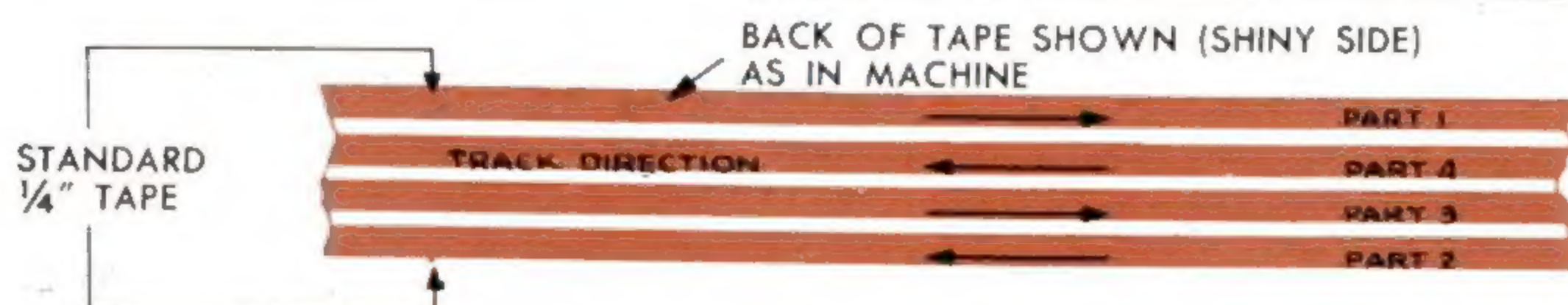
LOCATION OF 2-TRACK RECORDINGS ON THE TAPE

TO RECORD OR PLAY 4 SEPARATE MONAURAL TRACKS.

- Part 1.** (Track No. 1) Place track selector on "A". Place both full and empty reels on Recorder with side No. 1 up. Record or play side No. 1 of reel.
- Part 2.** At end of reel, take the full reel from the right spindle, turn it over to side No. 2, place it on the left spindle and re-thread machine. Place empty reel with side No. 2 up.
- Part 3.** At end of reel, turn track selector to "B," take the full reel from the right spindle, turn it over to side No. 1, place it on the left spindle and re-thread machine. Place empty reel with side No. 1 up.
- Part 4.** At end of reel, take the full reel from the right spindle, turn it over to side No. 2, place it on the left spindle and re-thread machine. Place empty reel with side No. 2 up.

A simplified chart of the above procedure, located in the case cover, is as follows:

FOUR MONAURAL TRACKS		
	BOTH REELS	SELECTOR
PART 1	SIDE: 1	ON: A
PART 2	SIDE: 2	ON: A
PART 3	SIDE: 1	ON: B
PART 4	SIDE: 2	ON: B



LOCATION OF 4-TRACK RECORDINGS ON THE TAPE

PLAY STEREO 2-TRACK TAPE.

1. Rotate the head track selector in the back of the head

cover to 1/2 track and play tape in one direction only.

PLAY STEREO 4-TRACK TAPE.

1. Rotate track selector to "A" track (4 track stereo). "4 track Stereo" means that each reel holds two full length recordings. Rewinding is not necessary at the end of the first side. To use the other side, simply take the full reel from the right spindle, turn it over, place it on the left spindle and re-thread machine. (Leave selector on "A").

RAPID FORWARD. To skip ahead to any point on the tape, press Rapid Forward button.

To stop, press "Stop" button. by pressing alternately between Rapid Forward, Stop and Rewind, the tape can be inched along to an exact point. The Rapid Forward or Rewind buttons can be pressed while the recorder is in either play or record.

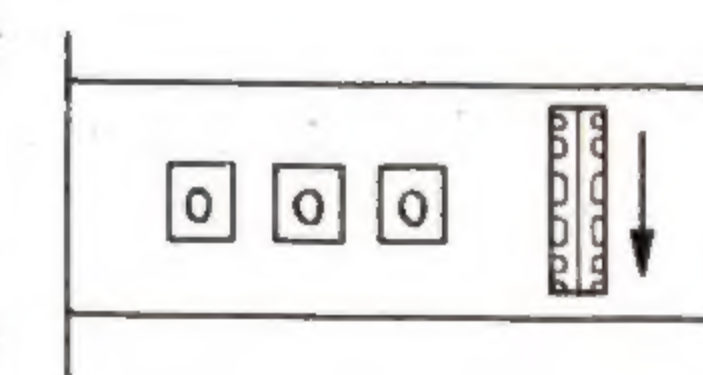
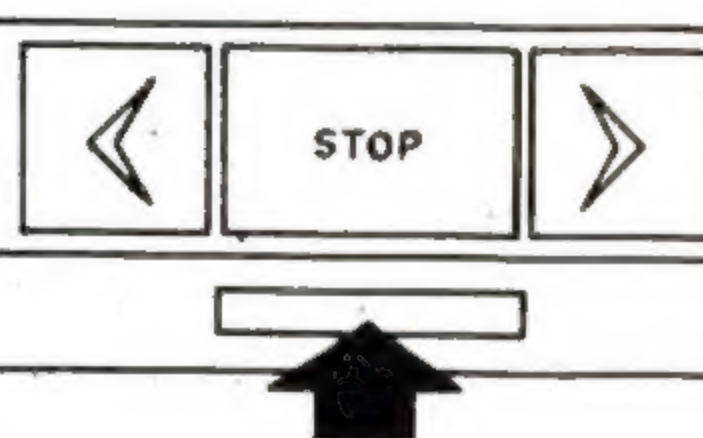
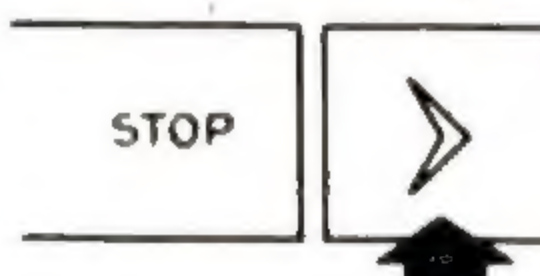
BACKSPACE BAR. A backspace bar is provided in front of the "Stop" button.

To use the backspace, the machine must be placed in "Play." Press the "Backspace Bar" holding it down for the length of backspace desired. In releasing the bar, the machine automatically goes back into play.

This feature is useful for repeating a phrase or passage.

The "Backspace Bar" can be pressed while the recorder is in "Record"; the machine will rewind and "Stop" upon releasing the "Backspace Bar."

USE OF TAPE COUNTER Set Counter to Zero at the beginning of the reel by turning forward its knurled knob. As you record a selection, mark the title and index number on the back of your tape box. This will enable you to locate selections instantly in the future.



CONNECTING TO HI-FI SYSTEMS

A Pre-Amp output is provided for direct connection to Hi-Fi systems. To connect for playing a tape, connect a shielded cable such as A196-13 Hi-Fi cable from the Pre-Amp output on the back of the recorder, to the External Amplifier's socket marked "Auxiliary," "TV," "Tuner," or "IV input." For playing tape, set the recorder's tone control to "Hi-Fi" and adjust the volume until the Normal indicator flashes. Thereafter, adjust volume and tone on the external amplifier to suit. When operated as above, the recorder will provide the maximum performance. To silence built-in speakers, plug A196-12 cord into Extension Speaker Jack. To connect for recording, plug a A196-13 Hi-Fi cable into the recorder's Radio Phono Input Jack (located in the rear) and to the socket of the external amplifier marked, "Detector," "Tape," "Recorder Input," or "Pre-Amp Output." If desired, recordings can be made directly from AM-FM tuners by connecting the Hi-Fi cable from the tuner socket to the recorder's Input Jack. The recorder can be used as audio amplifier by pressing "Stop" key and pushing the Speaker switch to "P.A-Monitor."

SPEED SELECTOR

A convenient speed selector is provided on the front panel above the "Rewind" button. Selector is pushed to the right for 7½" per second speed. Speed selector can be pushed while the recorder is in any function. Rapid Forward winding can be accelerated by pushing selector to 7½ ips. For most

recordings of speech and music, the 3¾ speed will give excellent results. The 7½ speed is intended for use when the recorder is used in conjunction with Hi-Fi systems.

SPLICING AND EDITING

If only one track is recorded on a new roll, the tape may be edited by cutting out unwanted portions or by joining selections in another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

For best results, cut tape at a slight diagonal, join ends together with Scotch Splicing tape on the glossy side. Trim off any excess width.

For precise editing, the tape is stopped at the desired word or sound by pressing the "Stop" button. The tape is then cut or marked at this sound by removing the head covers and marking the tape at the right hand element in the head cup. (The left element is the erase section.) The tape is most easily removed from the threading slot by stretching the tape toward you against the front head cover and lifting up.

RE-USING TAPE

Simply record the new program over the old material. The old recording will be automatically erased in the process. The re-recording process can be repeated indefinitely without deterioration in quality—a feature of Wollensak automatic High Frequency erase.

Only the portion of tape passing the Sound Head is erased when recording; this enables individual words or phrases to

be inserted into an existing recording. Unwanted portions can be erased without recording new sound by turning the "Volume" control down while recording.

WITH YOUR WOLLENSAK MICROPHONE

In recording, the most satisfactory results are obtained when the microphone is held about one foot from the mouth. Do not place the microphone on the same table with the recorder, or on a piano, or radio, as the microphone may pick up vibrations and produce a noisy recording. Try to keep the microphone at least three feet from walls during recording. When recording a group meeting or party, place the microphone in the center of the group. Wrapping the microphone in a few folds of soft cloth will help to reduce background noise. Microphone extension cord assembly A196-19 lengthens cable an additional 15 feet.

The mike may be used with any floor stand having a standard ⅝"-27 thread.

MONITOR MICROPHONE RECORDINGS

Microphone recordings can be monitored by plugging a headset into the External Speaker Jack, at rear of recorder, and pushing speaker switch to P.A.-Monitor. Monitoring with the recorder's speaker can be accomplished by pushing the speaker switch to P.A.-Monitor, however, the speaker and microphone should be separated as far as possible. For best results, the microphone and speaker should be placed in separate rooms. If the precaution of isolating the speaker and mike is not taken, feedback and howling will occur as with all high gain amplifiers.

COPYING A TAPE OF ANOTHER RECORDER

Connect two A196-12 attachment cords together so that the clips with the knotted wires (Ground) are on the same side. Plug into the output socket (Pre-Amp. or External speaker) of the recorder being played and into the Input socket (Phono-Radio) of the second recorder. Play the tape with the Tone Control midway between Treble and Bass and set the volume on both recorders to flash the Normal Indicator on each machine.

BALANCED TONE CONTROL (Patented)

The tone control is designed to give four distinct tonal extremes, and can be varied continuously between them to produce a blend of tone suitable to any type of program.

In BALANCED TONE Position, the response of the amplifier and acoustic system are coordinated to emphasize the very low and very high tones. The degree of emphasis varies with the volume setting, since less emphasis is required at high volume. The result is a striking realistic sound reproduction since the characteristics of the ear are compensated.

In BASS position, the highs are cut off and the very low tones are emphasized, resulting in a deep, rich tone. This position will also decrease the noise and scratch obtained from recording the sound from poor disc records.

TREBLE position brings forth the high overtones that give identity to musical instruments and clarity to speech.

HI-FI position is the setting which produces the widest uniform response for connection of the recorder to auxiliary equipment. The Tone Control is disconnected while recording. With the tone control in Treble prior to recording, the Record Level may be accurately pre-set.

TIPS ON RECORDING

TWO LEVEL RECORD INDICATOR

This indicator takes the guess work out of setting the recording level. The lamp is arranged so that "Normal" side (left "D" shaped element) lights at a lower volume than the "Distorted."

For correct recording level setting, adjust the volume until the "Distorted" indicator just extinguishes on loud passages and the "Normal" still flashes. The markings of "Normal" and "Distorted" apply only to recording. In playback, the indicator only shows relative volume.

AUTOMATIC HEAD DEMAGNETIZING

Recordings are protected against accumulating DC noise which could otherwise spoil even pre-recorded tapes being played. The demagnetizing circuit operates after each recording when the "Record" Key is released.

PUBLIC ADDRESS SYSTEM

With the Microphone button in and recorder in "Stop," pushing the Speaker Switch in the rear of the recorder to P.A.-Monitor connects the amplifier to the microphone as a 10 watt public address system. For best results, external auditorium speakers should be used and microphone and speakers separated as far as possible to prevent feedback and howling.

The excellent built-in 10 watt negative feedback amplifier will deliver sufficient power to fill an auditorium of 300 to 500 people. The amplifier with its extended range to 20,000 cycles is also suitable for direct connection to a Radio, AM-FM tuner or Phonograph. The Tone control is fully effective in "Stop" and "Play."

EXTENSION SPEAKER JACK

Superb reproduction can be obtained by operating a large Hi-Fi speaker directly from the External Speaker Jack. The Attachment Cord supplied may be used for this purpose. Nominal output impedance is 8 ohms. Speakers with impedances of 3.2 or 16 ohms may be used with only a slight loss in power. Frequency response is unaffected. Accessories such as the TE-401 ear phone or any head phones may be used. The speaker in the recorder is disconnected when a plug is inserted into the External Speaker Jack.

DUAL HI-LO INPUT

The single Input Jack, located on the rear panel is designed to make the proper selection between Microphone and Phono-Radio. Accessory microphones (high impedance) may be connected using a short (1") phone plug, Wollensak #A173-1, or Switchcraft R280. Radio-Phono connection is made with a standard phone plug (1-3/16") as furnished on the Attachment cord, Wollensak #A173-15, Switchcraft #280.

INSTANT-STOP LEVER

To the left of the "Record" Button, is a combination Instant Stop Lever-Record Lock. The "Record" button cannot be pressed unless the "Instant Stop Lever" is pulled back. This prevents accidental erasure of the tape. While in "Record" or "Play," pulling the lever instantly stops the tape. Examples of its use are: to noiselessly hold back the tape to prevent recording unwanted breaks in radio programs; to precisely set the recording level while the "Record" key is down.

MICROPHONE

The unit furnished is the latest ceramic type microphone with a broad band response. No special precautions are necessary in the use of the microphone except dropping the unit. It will operate efficiently under hot and cold climatic conditions. The built-in swivel base accepts any 5/8"-#27 thread, desk or floor stand.

MAINTENANCE

If sound becomes unsatisfactory, or ability to erase is impaired, clean Sound Head. Pull up the Head Covers and wipe the faces (elements the felt pressure pads press the tape against) of the Sound Head with a little alcohol on a cotton swab. While in "Play," note if the two felt pads are worn or not pressing tape squarely against pole faces. Replacement felt pressure pads furnished may be cemented in place with household cement. Pads should cover shiny pole faces of Head, and side of pad touching Head should be free of cement.

All moving parts are permanently lubricated. Under normal use, further lubrication should not be required.

The electrical parts are generously rated and replacement should not be necessary.

To replace tubes simply remove bottom cover by removing 8-screws:

4-screws-inline with, and inside front rubber feet. 1-screw on right side panel 1/2" above rear foot. 1-screw in rear left rubber foot. 2-screws 1" to the side of the top cover hinges.

STEREO INSTRUCTIONS

WOLLENSAK T-1616 AND T-1818 HI FIDELITY IN-LINE STEREOPHONIC TAPE RECORDERS

FOREWORD

Your Wollensak Stereophonic Tape Recorder enables making monaural recordings in the manner described on the first 9 pages of this instruction book. In addition, this stereo recorder has a built-in in-line lower channel head and pre-amplifier that provides for playing back prerecorded 2 or 4 track stereophonic tape. (Note section titled Track Selection, stereo models T-1616 & T-1818, 2 track and 4 track). With this unit, you can enjoy the realism of music never before obtained. A full orchestra will be reproduced right in your living room. You can sit back and feel the impact of percussion instruments on one side of the room contrasted with soft sounds of string or reed instruments on the other.

In a similar manner that stereo photography uses two pictures, one for each eye, to bring out the realism and depth of three dimensions, Wollensak T-1616 and T-1818 uses two separate sound channels to bring you the magnificent depth of three-dimensional sound.

Figure 1 below shows how the tape has two sound tracks.

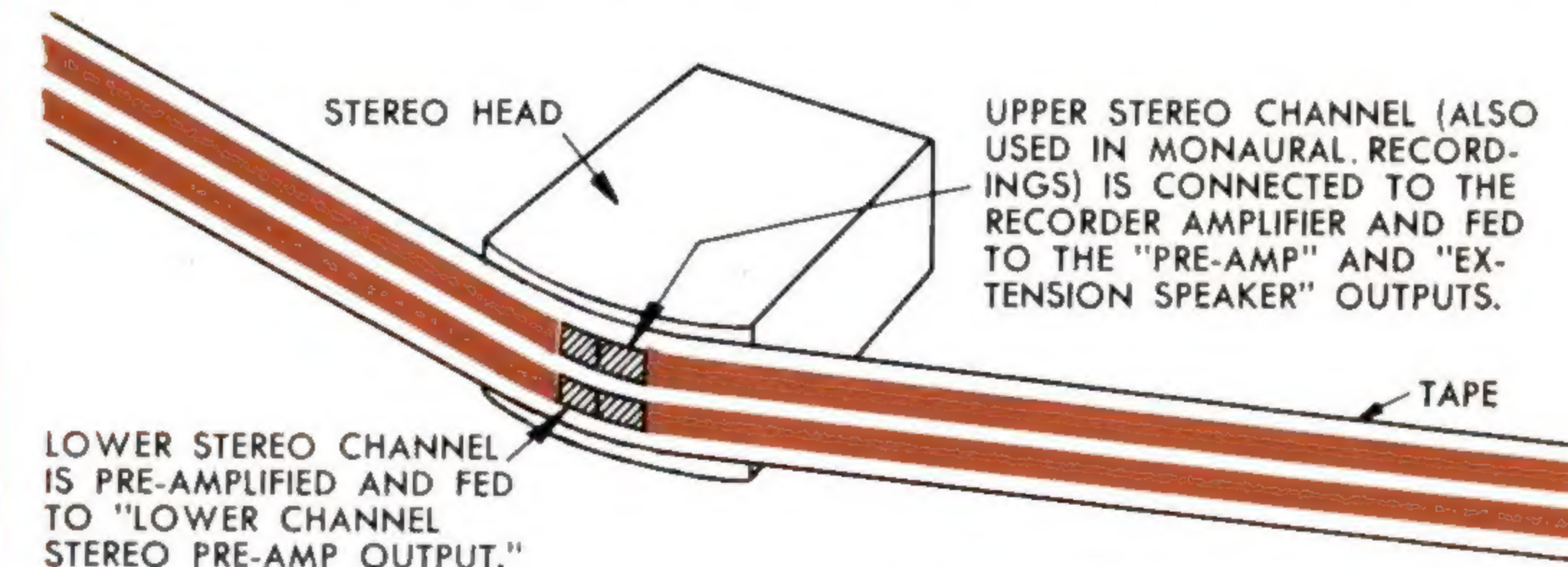


FIGURE 1. DUAL CHANNEL STEREO HEAD

To see the head on your machine, remove the head covers, as described in maintenance section.

Because of the greater fidelity and versatility of stereo on magnetic tape, all recording companies are now using this medium to record their first music masters. This provides for an endless supply of superb Hi-Fi tapes which are readily available at most music stores. When obtaining your tape, be sure to order in-line stereo tape.

PLAYING STEREO RECORDINGS THROUGH RADIO, TV OR PHONO

The upper stereo channel is played as a regular recording through the tape recorder and its self-contained speaker, as described on page 6 of the instruction book. The lower stereo channel of the recorder has a built-in pre-amplifier, which enables playing through most radios, TV's, tape recorders, or phonos.

TO MAKE CONNECTIONS: Make connections as shown in figure 2 below:

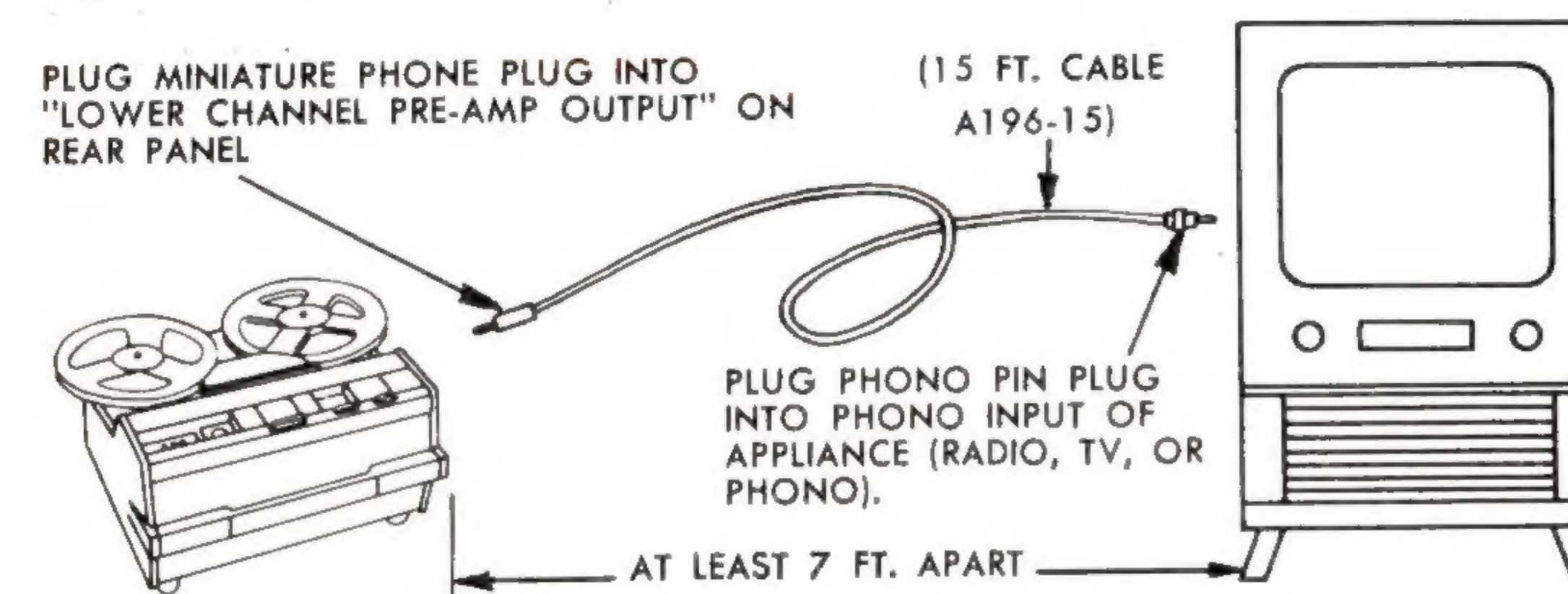


FIGURE 2. TYPICAL STEREO HOOKUP

Place switch on appliance (radio, TV, or phono) in "phono" position. Place recorder and appliance on one side of the room at least 7 feet apart. Play a stereo tape and adjust

the volume of both units so that they sound equal when standing equidistant between them.

Hum may develop on the lower channel with certain brands of appliances (radios, TV's, or phonos), in particular the units that are marked AC-DC. To lower the hum, try reversing the power plug of either or both the recorder and the appliance. If the appliance has an exposed chassis, try connecting a wire between the recorder and appliance chassis. Do not attempt to make connection to an unexposed AC-DC radio chassis for this may create a shock hazard. In severe cases of hum, an inexpensive isolation transformer for the appliance may have to be used to isolate the appliance from the power line.

CONNECTING STEREO RECORDERS TO HI-FI SYSTEMS

There are a large number of hookups that can be made between the recorder and Hi-Fi units. The most common hookup is shown in figure 3.

With the equipment hooked up as in figure 3, play a stereo tape and adjust both units so that they sound equal when standing equidistant between the two speakers.

If desired, another auxiliary Hi-Fi amplifier can be used to drive the left speaker. To connect the upper channel or left amplifier, follow the instructions on "Connecting To Hi-Fi Systems" on page 10.

If there is hum in the lower channel, try reversing the power plug of either the auxiliary amplifier or the recorder.

The lower channel pre-amp hum adjustment has been factory adjusted for minimum hum; however, in some cases of excessive hum, a readjustment may be necessary. To accomplish this, have the recorder turned on and in "Stop" position. Turn up the volume on the lower channel auxiliary amplifier and adjust the pre-amp hum adjustment for minimum hum. The pre-amp hum adjustment is accessible by removing the bottom tube replacement cover.

SPEAKERS AND PLACEMENT

For the best reproduction, the speakers should be of good quality and should be identical units. Place the speakers on one wall at least 7 feet apart. Locate them so that the listening area is on a central line between the two speakers. If the room is not too large, the speakers can be placed in opposite corners facing the center of the room. The speaker in the recorder can be used as one of the speakers by placing the recorder in one position and the speaker connected to the auxiliary amplifier in the other.

The most realistic binaural effect can be obtained by the use of headphones. Wire the headphones so that the recorder output feeds a phone to one ear and the other phone is fed from the auxiliary amplifier.

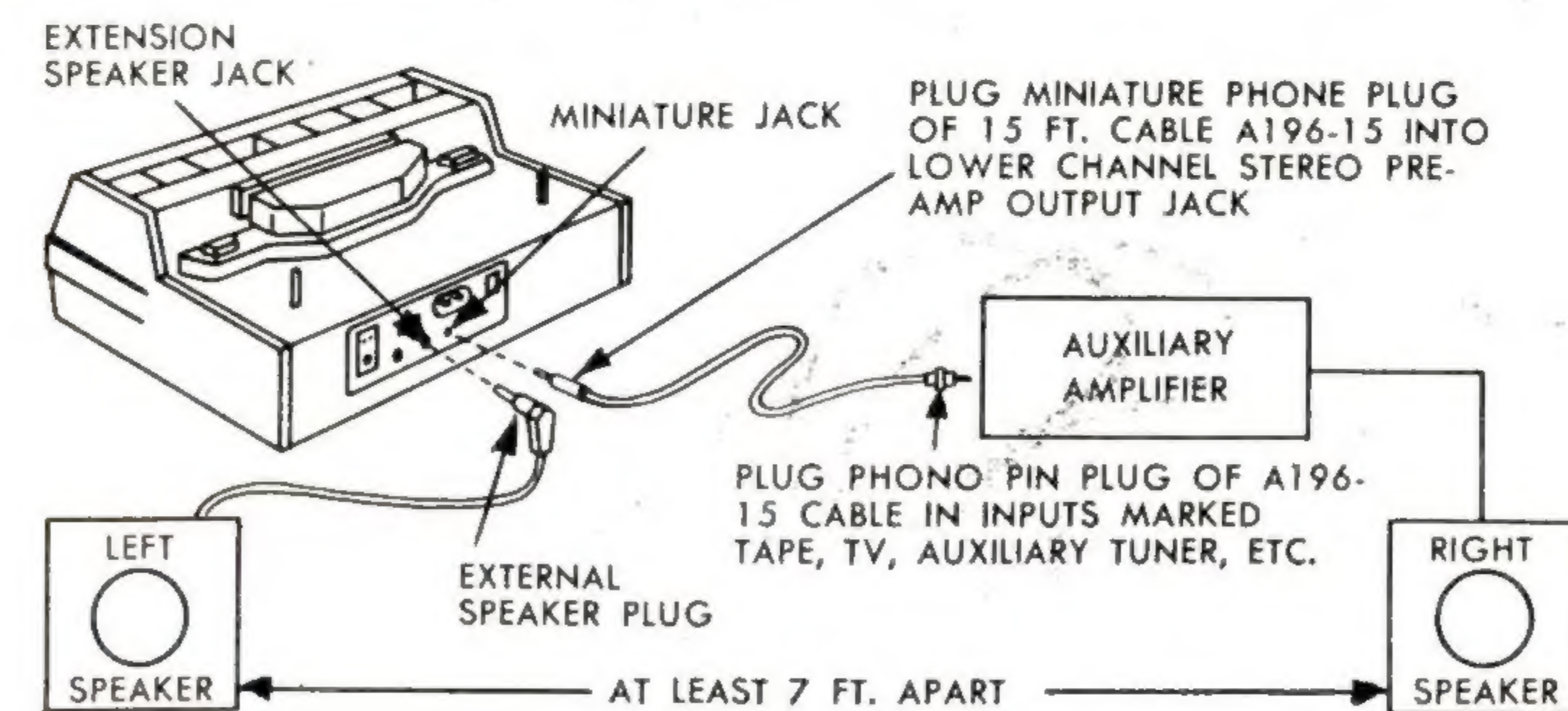


FIGURE 3. TYPICAL STEREO HOOKUP WITH HI-FI EQUIPMENT

SPECIFICATIONS

SIZE:	6½" x 10¼" x 11¾" (Approximately).
WEIGHT:	21 lbs.
POWER CONSUMED:	100 Watts.
PLAYING TIME:	3 hours, L.P. tape 3¾ I.P.S. 7" reel 1½ hours, L.P. tape 7½ I.P.S. 7" reel 2 hours Standard tape 3¾ I.P.S. 7" reel 1 hour Standard Tape 7½ I.P.S. 7" reel
FREQUENCY RESPONSE:	40-15,000 C.P.S. ± 3db at 7½ I.P.S. 40-8,000 C.P.S. ± 3db at 3¾ I.P.S. (NARTB Standard Equalization)
BOTH SPEEDS:	(Both—monaural and stereo machines)
WOW-FLUTTER:	Less than 0.3%
SIGNAL TO NOISE:	Greater than 48db
ON STEREO MODELS ONLY:	Playing time up to 6 hours monaural 4 track recordings, L.P. tape 3¾ I.P.S., 7" reel
FREQUENCY RESPONSE:	(Both channels) 40-17,000 C.P.S. ± 3db at 7½ I.P.S. 40-10,000 C.P.S. ± 3db at 3¾ I.P.S. NARTB Standard Equalization)
SIGNAL FROM LOWER CHANNEL PRE-AMP OUTPUT:	0.5—1.5 volts
CROSS TALK:	—50db

WOLLENSAK ACCESSORIES

HI-FI CABLE

Specifically designed for connecting recorder to HI-FI amplifiers and AM-FM tuners. 4-foot shielded cord with Wollensak plug and phono pin plug.

A196-13 \$2.00

TYPEWRITER CONTROL

(For Model T-1800 series only). Starts, Stops and Backspaces tape instantly at a light touch for ease of transcribing. Can also start and stop tape in record.

TW-418 \$17.50

MIXER

Three Inputs—Permits mixing of any combination of three microphones, phonos, or radios.

TF-908 \$15.00

MICROPHONE EXTENSION CORD

For making microphone recordings at a remote location. 15-ft. length with Wollensak plug and cable jack.

A196-19 \$7.50

EXTRA ATTACHMENT CORD

For connecting Radio, TV, Phonograph, or External Speakers to recorder.

A196-12 \$2.50

EARPHONE

For monitoring and private playbacks... Ideal for stenographers, etc. Chin band detachable to permit single ear use. (Reversible to fit either ear.)

TE-401 \$10.50

STUDIO MICROPHONE

For critical requirements of professional users. Dynamic Type wide response (40-15,000 cps.) Super-Cardioid excludes side and back noises. With desk stand and 25 foot cord.

A-162-2 \$75.00

CASE SLIP-OVER TYPE

Genuine virgin vinyl with handy storage pocket for reels, cords and accessories. Folds flat when not in use.

TSC-405 \$7.50

STEREOPHONIC KIT IN-LINE

Converts Model T-1600 Wollensak recorder to stereo playback and monaural recording. Kit includes IN-LINE head, insulators, wrench, cable and instructions.

SK-707 \$34.50

EXTRA CONTACT TABS

Dispenser card with 42 Auto Rewind and Repeat tabs.

A187-10 \$1.00

Electronic Control

BACK SPACE

VOLUME

TONE

WOLLENSAK

INSTRUCTION MANUAL

T-1600 & T-1800 SERIES

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